

**CLAIMS**

1. A gas flow generator comprising:  
an ultrasonic driver comprising a piezoelectric or electrostrictive transducer  
5 mounted on a substrate, operation of the transducer being arranged to cause the driver to bend;  
a first membrane disposed on or formed integrally with the transducer or the substrate; and  
a second membrane mounted substantially parallel with the driver and spaced  
10 a given distance therefrom,  
one of the membranes being perforate, whereby ultrasonic bending of the driver on actuation of the transducer causes a gas flow through the perforate membrane.
2. A gas flow generator according to claim 1, wherein either or both of the first or  
15 second membranes is perforate.
3. A gas flow generator according to claim 1, wherein the second membrane is disposed on or formed integrally with a second ultrasonic driver.
- 20 4. A gas flow generator according to one of claims 1 to 3, wherein one or each of the ultrasonic drivers is a piezoelectric transducer.
5. A gas flow generator according to claim 4, wherein the substrate and the piezoelectric transducer have substantially comparable stiffness.  
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6. A gas flow generator according to any one of the preceding claims, wherein the ultrasonic driver is annular.
7. A gas flow generator according to any one of the preceding claims, wherein the  
30 second membrane is supported on the substrate of the driver by a spacer.
8. A gas flow generator according to claim 7, wherein the spacer is generally annular and has an opening through which gas can flow into and out of a cavity formed between the driver and the second membrane.  
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9. A gas flow generator according to claim 7 or claim 8, wherein the spacer is mounted on an annulus which is connected to the ultrasonic driver by means of a plurality of spokes.
- 5 10. A gas flow generator according to any one of the preceding claims, wherein one or both of the first and second membranes is provided with one or more channels.
11. A gas flow generator according to any one of claims 1 to 5, wherein the ultrasonic driver is linear.